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Patent Application for:

Applicants: Clarence W. Buffalo et al.

Atty. No: 1999-0699

Title: Customer service Maintenance Automation

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Patent Application

Inventor(s) Clarence W. Buffalo et al.

Case 1999-0699

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Title Customer Service Maintenance Automation

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SIR:

**BRIEF ON APPEAL**

**I. INTRODUCTION**

Appellants submit the foregoing Amended Brief in response to a Notice of Non-Compliance with 37 CFR 1.192(c) mailed on November 10, 2004 and further pursuant to a Notice of Appeal filed June 4, 2004, from a decision of the Examiner dated March 11, 2004, issuing a final rejection of all pending claims 1-17 and 19-29 of the above-identified application.

## **II. REAL PARTY IN INTEREST**

AT&T Corp. is the real party in interest by virtue of an Assignment recorded in the United States Patent and Trademark Office on October 10, 2000.

## **III. RELATED APPEALS AND INTERFERENCES**

This is the first appeal in the above-identified application.

## **IV. STATUS OF CLAIMS**

Claims 1-7, 15-17 and 19-29 are currently rejected. Claim 18 has been previously cancelled, and claims 8-14 are currently cancelled. The final rejection of claims 1-7, 15-17 and 19-29 is currently being appealed.

## **V. STATUS OF AMENDMENTS**

Appellants' amendment to the pending claims dated January 27, 2004 has been entered, but was not found by the Examiner to place the case in condition for allowance.

## **VI. SUMMARY OF CLAIMED SUBJECT MATTER**

Appellants' invention, as discussed in the specification at page 2, beginning at line 5, "provides a customer maintenance system for automatically providing infrastructure maintenance in response to a customer form/report/ticket in a communications network that includes a core communications service and an access provider service. The system includes a Work-Flow Manager that is arranged to trigger, for each customer form/report/ticket, each of a plurality of automatic software programs in response to an associated milestone event for the customer form/report ticket and a Maintenance Program Scheduler that is coupled to the Work-Flow Manager and is used for invoking at least one predetermined maintenance software program/engine based upon predetermined criteria being met by the form/report/ticket". The drawings at FIG. 2

illustrate the claimed subject matter, where a Work-Flow Manager 202 and Maintenance Program Scheduler 204 are illustrated as part of the Business Maintenance Platform (BMP). This discussion in the specification at page 2, and associated illustration in FIG. 2, is asserted to concisely define the subject matter of independent claim 1.

The subject matter of independent claims 15 and 26 is further described in the specification at page 5, beginning at line 1, “[t]he present invention may be implemented as a method for automatically providing infrastructure maintenance in response to a customer form/report/ticket in a communications network that includes a voice and data service. The method includes the steps of: generating a ticket/customer repair request regarding a problem [FIG. 1, step 102]; diagnosing the problem [FIG. 1, step 104]; testing to determine whether the problem has been fixed [FIG. 1, step 106]; generating clearance and analysis codes [FIG. 1, step 108]; notifying the customer that the system has repaired the problem [FIG. 1, step 110]; and closing out the ticket/repair upon successful repair of the problem [FIG. 1, step 112]”. In particular, “[d]iagnosing the problem is generally accomplished by an automatic diagnosing program and an automatic linking program”. Appellants believe that this discussion in the specification at page 5, and associated illustration in FIG. 1, concisely defines the subject matter of independent claims 15 and 26.

## **VII. GROUNDS OF REJECTION TO BE REVIEWED ON APPEAL**

The following is a concise statement of each ground of rejection presented for review:

- Claims 1, 3-5 and 7 were rejected under 35 USC § 103(a) as being unpatentable over US Patent 6,445,774, in view of US Patent 6,032,184
- Claims 2, 6, 8-17 and 19-29 were rejected under 35 USC § 103(a) as being unpatentable over US Patent 6,445,774 and US Patent 6,032,184, in view of US Patent 5,946,372

## VIII. ARGUMENT

### *A. 35 USC § 103(a) Rejection – Claims 1, 3-5 and 7*

In the Office action dated March 11, 2004 (application Paper No. 8), the Examiner issued a Final rejection of the cited claims under 35 USC 103(a) as being unpatentable over US Patent 6,445,774 (Kidder et al., of record), in view of US Patent 6,032,184 (Cogger, also of record). The Examiner cited Kidder et al. as teaching “a Work-Flow manager, arranged to automatically trigger, for each customer form/report/ticket, at least one automatic diagnosis program from a plurality of automatic diagnosis software programs without human intervention” and “a Maintenance Program Scheduler, coupled to the Work-Flow Manager, for invoking at least one predetermined maintenance software program based upon predetermined criteria being met by the form/report/ticket, and the results of the at least one automatic diagnosis software program, without human intervention”. The Examiner stated that Kidder et al. lacked any teaching regarding an Access Provider, and thus cited Cogger as teaching “providing infrastructure maintenance response to a customer form/report/ticket in a communications network that includes an Access Provider services” and concluded that “[i]t would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the teachings of Kidder and Cogger because Cogger’s method of providing Access Provider services would enhance the attractiveness of Kidder’s automatic customer maintenance system by providing an all inclusive service require contact point”.

In response, appellants assert that the cited Kidder reference does not disclose or suggest any system wherein a “Work-Flow Manager” is configured to “automatically trigger ... *at least one automatic diagnosis software program*” and a “Maintenance Program Scheduler” is configured to invoke “at least one predetermined maintenance software program”, as defined by rejected independent claim 1. The Kidder system is associated with the “automatic workflow” of trouble tickets in a communication network, and is “automated” in terms of always knowing/monitoring the status of each trouble ticket. No analysis, “diagnosis” or “maintenance” is actually performed by the Kidder system. No system element is “triggered”, for each trouble ticket, to perform “at least

one automatic diagnosis software program”. The various portions of Kidder cited by the Examiner define and describe the flow of the actual trouble ticket from its initial creation to its resolution. Thus, it is asserted that the Kidder function of overseeing the progress of a trouble ticket through a network maintenance system could be used in conjunction with appellants’ inventive system for providing “automated maintenance”, as defined by rejected claims 1, 3-5 and 7.

The cited Cogger reference does disclose a system that allows for a customer to submit a “trouble ticket” to a network management agent, regardless of whether of the trouble is associated with the access provider’s network/equipment, or a “long-distance telephone company’s” network/equipment. However, as with the cited Kidder reference, the Cogger system is associated with “tracking the life cycle of the trouble ticket” (column 16, line 55). There is no disclosure in Cogger regarding the automation of the actual “diagnosis” and “maintenance” efforts, which is precisely the subject matter of rejected claims 1, 3-5 and 7.

Based on these significant differences, therefore, appellants remain convinced that the combination of Kidder and Cogger cannot be found to render obvious the subject matter of the present invention as defined by claims 1, 3-5 and 7. Appellants therefore respectfully request the Board of Appeals to reconsider these arguments, reverse the Examiner’s rejection and find claims 1, 3-5 and 7 to be in condition for allowance.

## ***B. 35 USC § 103(a) Rejection – Claims 2, 6, 8-17 and 19-29***

### **1. Claims 2 and 6**

The Examiner issued a Final Rejection of the above-cited claims under 35 USC 103(a) as being unpatentable over Kidder and Cogger (as above), in view of US Patent 5,946,372 (Jones, of record).

Regarding claim 2, the Examiner cited Kidder as teaching “an automatic linking program for automatically linking the customer with an area to solve a problem”, referred to column 8, lines 26-49 of Kidder. That portion of the Kidder reference includes a description of a “live” network monitor technician that contacts “the on-site personnel

and apprises them of the anomaly. In some instances, the on-site personnel can resolve the anomaly and terminate the alarm generated by the telecommunications network”. There is no discussion or description in this portion of Kidder regarding “automatically linking the customer with an area to solve a problem”. The Jones reference is then cited by the Examiner as teaching “an automatic diagnosing program for providing automatic diagnosis”, as further defined in claim 2. In response, appellants assert that Jones is not directed to any system/method for “diagnosing” alarms/troubles in a communication network. Rather, Jones is directed to implementing a standard script of “tests” to a new installation (primarily associated with digital installations) to check for bugs/errors in the system prior to turning up the system for the customer. In particular, a pre-defined set of tests are run on the line to determine line quality, bit error rate, etc. There is no “analysis” of a trouble and a selection of a “diagnosis software program” to utilize with the trouble to ascertain the best maintenance program to employ, where this is the subject matter of the present invention as defined by claim 2. Moreover, there remains no teaching of “diagnosing” a network problem, as defined by the system of claim 1, from which claim 2 depends.

Regarding claim 6, the Examiner further cited Jones as teaching the use of a “Test Unit for testing a selected infrastructure portion of the communications network”. While this may be true, the combination of Jones with Kidder and Cogger still does not disclose or suggest any system for providing “automatic diagnosis”, followed by “maintenance” software to correct the problem, as defined by independent claim 1, from which claim 6 depends.

For all of the above reasons, therefore, appellants respectfully request the Board of Appeals to reconsider these arguments, reverse the Examiner’s finding and instead find claims 2 and 6 to be in condition for allowance.

## **2. Claims 8-14**

Inasmuch as claims 8-14 have been cancelled from this application, there is no longer a need to respond to the Examiner’s grounds for rejection.

### **3. Claims 15-17, 19-25**

In the rejection of claims 15-17 and 19-25, the Examiner cited Jones as teaching the particular method step of “diagnosing the problem by using an automatic diagnosing program”. As discussed above, Jones discloses a system/method for providing initial testing of a network element or line. Various tests include, but are not limited to, bit error rate, signal-to-noise ratio, etc. The tests are performed without any *a priori* knowledge of the line being tested. Therefore, these tests cannot be considered as used to “diagnosis” an existing problem. In contrast, a standard, conventional set of tests are performed to determine the “health” of the line. Thus, appellants assert that there is no teaching in Jones (or Kidder or Cogger) regarding the method step of “diagnosing the problem by using an automatic diagnosing program and using an automatic linking program for automatically linking the customer with an area to solve a problem” as defined by independent claim 15. Without this teaching, appellants assert that independent claim 15, as well as remaining dependent claims 16, 17 and 19-25 cannot be found to be rendered obvious by the combination of Jones with Kidder and Cogger.

Appellants thus respectfully request the Board of Appeals to reconsider the Examiner’s Final Rejection in light of these assertions, reverse this Final Rejection and find claims 15-17 and 19-25 to be in condition for allowance.

### **4. Claims 26-29**

Regarding the Examiner’s rejection of independent claim 26, the Examiner cited Jones as teaching “sending ... a message requesting verification that the problem has been fixed”, and “testing and performing alarm checks to determine if the circuit problem has been repaired”. While this may be true, appellants assert that Jones does not disclose or suggest any step of “diagnosing the circuit problem” in the first instance, as required by rejected claim 26. As described above, Jones is directed to running a series of tests for a new circuit to determine the quality of the circuit before being used by a customer. There is no “trouble ticket” issued by a customer and responded to with a diagnosis in Jones (or in Cogger or Kidder).



Based on this lack of teaching, appellants assert that the combination of Jones with Kidder and Cogger cannot be found to render obvious the subject matter of the present invention as defined by independent claim 26, or claims 27-29 which depend therefrom. Appellants therefore respectfully request the Board of Appeals to review these assertions, reverse the Examiner's rejection and find claims 26-29 to be in condition for allowance.

#### IX. CONCLUSION

For the reasons expressed above, the Examiner's rejections of claims 1-7, 15-17 and 19-29 under 35 USC § are considered to lack merit and thus mandate reversal. Appellants solicit such action from the Board of Appeals at this time.

Respectfully submitted,

Clarence W. Buffalo et al.

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610-346-7112

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## CLAIMS APPENDIX

1. *(previously presented)* An automatic customer maintenance system for automatically providing infrastructure maintenance in response to a customer form/report/ticket in a communications network that includes a core communications service and an Access Provider service, comprising:

a Work-Flow Manager, arranged to automatically trigger, for each customer form/report/ticket, at least one automatic diagnosis software program from a plurality of automatic diagnosis software programs without human intervention; and

a Maintenance Program Scheduler, coupled to the Work-Flow Manager, for invoking at least one predetermined maintenance software program based upon predetermined criteria being met by the form/report/ticket, and the results of the at least one automatic diagnosis software program, without human intervention.

2. *(previously presented)* The automatic customer maintenance system of claim 1 wherein the plurality of automatic diagnosis software programs include:

an automatic diagnosing program for providing automatic diagnosis;

an automatic linking program for automatically linking the customer with an area to solve a problem;

an automatic notification program for automatically notifying a maintenance technician when the problem requires further analysis;

an automatic referral program for automatically referring the problem to the Access Provider service via a first gateway;

an automatic preparation for clearance program for automatically populating clearance information and analysis codes on the ticket based on a diagnosis conclusion sent by the Access Provider service;

an automatic progress reporting program for automatically verifying if the problem has been fixed;

an automatic customer notification program for automatically conveying clearance information for the customer; and

an automatic closing program for automatically checking for tickets that have been conveyed to the customer.

3. *(previously presented)* The automatic customer maintenance system of claim 1 wherein the at least one predetermined maintenance software program for the maintenance program scheduler includes:

- an automatic process reporting program; and
- an automatic closing program.

4. *(previously presented)* The automatic customer maintenance system of claim 1 wherein the Access Provider service is implemented using a second gateway for access that is coupled to a data communication network of the communications network.

5. *(previously presented)* The automatic customer maintenance system of claim 1 wherein the customer form/report/ticket is initiated by an agent in a Customer Care Platform that is coupled to a data communication network that delivers the customer form/report/ticket to a Business Maintenance Platform for processing without human intervention in accordance with at least the automatic software programs.

6. *(original)* The automatic customer maintenance system of claim 5 wherein the Business Maintenance Platform includes:

- a Database for storing circuit and customer information;
- a Ticket Unit for processing the customer form/report/ticket;
- a Test Unit for testing a selected infrastructure portion of the communications network;
- an Alarm Unit for recording problems that the system detects in the network; and
- an Event Unit having a Work-Flow Manager and a plurality of computer programs/engines, wherein the Event Unit is used for monitoring events and initiating activities based on events.

7. *(original)* The automatic customer maintenance system of claim 1 wherein the Business Maintenance Platform is coupled in parallel to a Data Communication Network, Service Provisioning System, a Work Management System, Network Management Systems, a Billing System and a Gateway.

8. – 14. *cancelled*

15. *(previously presented)* A method for automatically providing, without human intervention, infrastructure maintenance in response to a customer form/report/ticket in a communication network that includes a core communications service and an Access Provider service, comprising the steps of:

- generating a ticket/customer repair request regarding a problem;
- diagnosing the problem by using an automatic diagnosing program and using an automatic linking program for automatically linking the customer with an area to solve a problem;
- testing to determine whether the problem has been fixed;
- generating clearance and analysis codes;
- notifying the customer that the system has repaired the problem; and
- closing out the ticket/repair request upon successful repair of the problem.

16. *(original)* The method of claim 15 wherein generating a ticket/customer repair request regarding a problem is accomplished by a customer and the ticket is transmitted to a Business Maintenance Platform for automatic infrastructure maintenance processing.

17. *(original)* The method of claim 15 wherein generating a ticket/customer repair request regarding a problem is accomplished by an agent of a Customer Care Platform and transmitted to a Business Maintenance Platform for automatic infrastructure maintenance processing.

18. *cancelled*

19. *(original)* The method of claim 15 wherein testing to determine whether the problem has been fixed is accomplished by an automatic verification program for automatically verifying if the problem has been fixed.

20. *(previously presented)* The method of claim 15 wherein generating clearance and analysis codes is accomplished by an automatic preparation for clearance program for automatically populating clearance information and analysis codes on the ticket based on a diagnosis conclusion sent by the Access Provider service.

21. *(previously presented)* The method of claim 15 wherein notifying the customer that the system has repaired the problem is accomplished by an automatic customer notification program for automatically conveying clearance information for the customer that displays a circuit trouble description to the customer via e-maintenance, a web-based system that provides customers direct access to view/update their trouble ticket, and by an Interactive Voice Response system.

22. *(original)* The method of claim 15 wherein closing out the ticket/repair request upon successful repair of the problem is accomplished by an automatic closing program for automatically checking for tickets that have been conveyed to the customer.

23. *(previously presented)* The method of claim 15 wherein an automatic notification program for automatically notifying a maintenance technician when the problem requires further analysis is utilized when a trouble ticket is sent to a maintenance technician as soon as the problem is diagnosed as a telephone service/core communications service problem requiring manual intervention.

24. *(original)* The method of claim 15 wherein an automatic progress reporting program for automatically determining when a status is owed to the customer is utilized to implement an Interactive Voice Response system that automatically phones the

customer periodically and informs him/her/an answering machine of the current status of his/her ticket.

**25. (original)** The method of claim 15 wherein an automatic verification program for automatically verifying if the problem has been fixed is utilized to run tests and perform alarm checks to determined if an Access Provider has fixed the problem.

**26. (previously presented)** A method for automatically providing infrastructure maintenance in response to a customer form/report/ticket in a communications network that includes a core communications service and an Access Provider service, comprising the steps of utilizing, without human intervention, software programs for automatically:

preparing, by one of a customer and an agent, a customer form/report/ticket concerning a circuit problem and sending the customer form/report/ticket to a Business Maintenance Platform;

determining whether the circuit problem reported has been caused by a higher level facility/equipment, automatically preparing a second ticket for the higher level facility/equipment and correlating the customer form/report/ticket and the second ticket with respect to updates;

diagnosing the circuit problem and, where the circuit problem has been fixed, initiating clearing of the ticket, and where the problem exists in the Access Provider's portion of the circuit, automatically sending an electronic referral to an Access Provider, and determining that manual intervention by a maintenance technician to the need for repair;

sending, upon the Access Provider's/the maintenance technician's completion of the repair, a message requesting verification that the problem has been fixed;

testing and performing alarm checks to determine if the circuit problem has been repaired;

when the circuit problem has been repaired, re-populating clearance information and analysis codes on the customer form/report/ticket to indicate that the circuit problem has been repaired;

providing an update to the customer, by one of an interactive voice response system and an email, indicating that the problem is fixed; and

when the customer confirms that the circuit problem is fixed, closing out the ticket.

**27. *(previously presented)*** The method of claim 26 wherein, following clearing, alternatively, an email (EM) is sent automatically to update the customer; and when the customer indicates that the problem is fixed, automatically closing out the customer form/report/ticket.

**28. *(previously presented)*** The method of claim 26 including automatically sending an electronic message to the Access Provider to indicate that the public switched network service accepts closure after verification that the circuit is working correctly.

**29. *(previously presented)*** The method of claim 26 including automatically reporting upon one of the following: a predetermined time having elapsed, an initiation by the automatic referral, an initiation by the automatic notification, and an indication that a report on progress due is needed.

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